



# Natural Gas Market Outlook 2006 - 2016

Sponsored by  
The CEC and the CPUC



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California Energy Commission  
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San Francisco

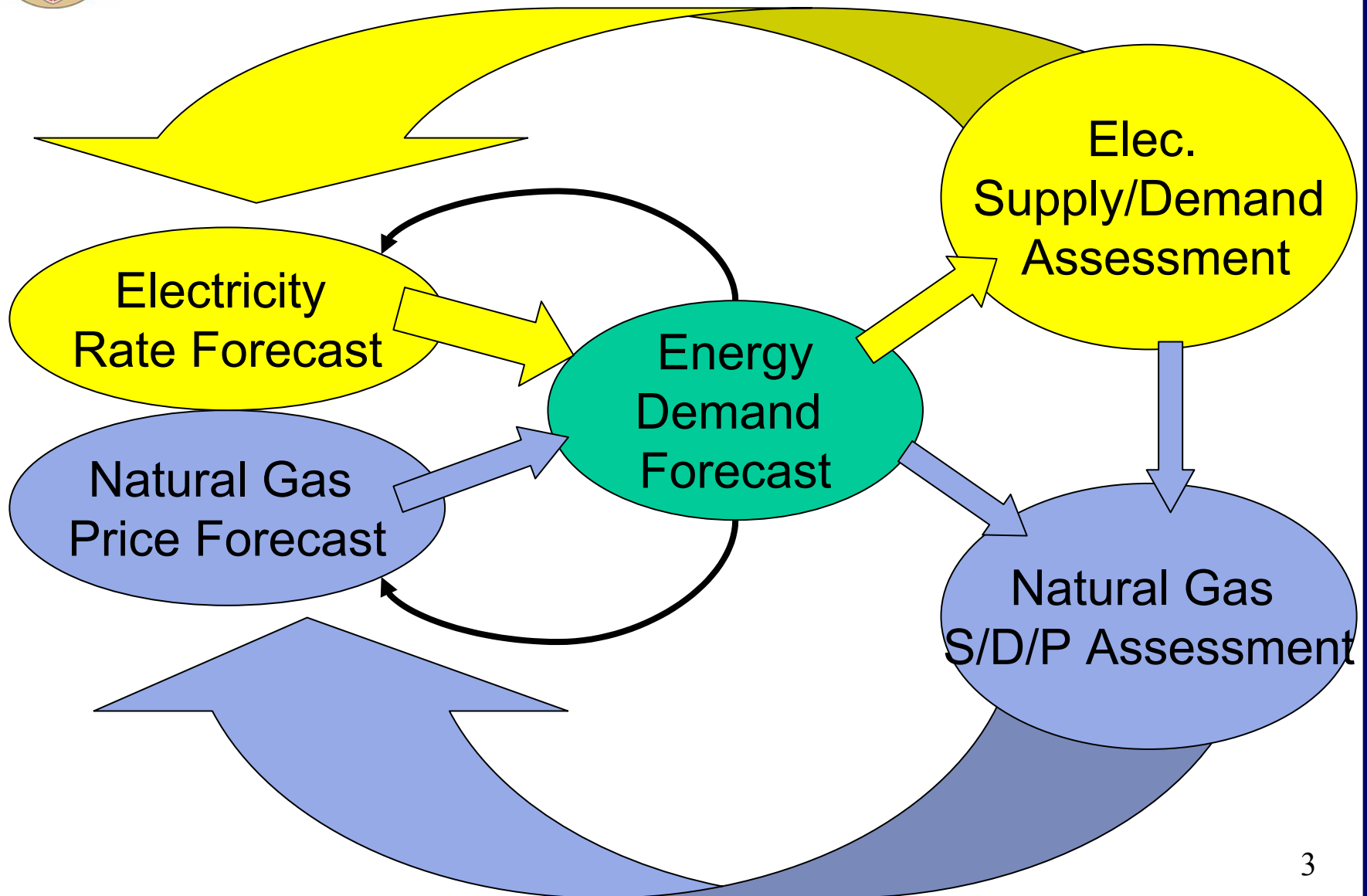


## Forecast of Future Demand

- What is the outlook for natural gas demand for California and the other Western
- What is the outlook for gas demand for power generation in and around California?
- How will the growth for gas demand for power generation in the WECC impact California supplies?
- How will energy efficiency, conservation and renewable resource utilization influence gas demand in California?

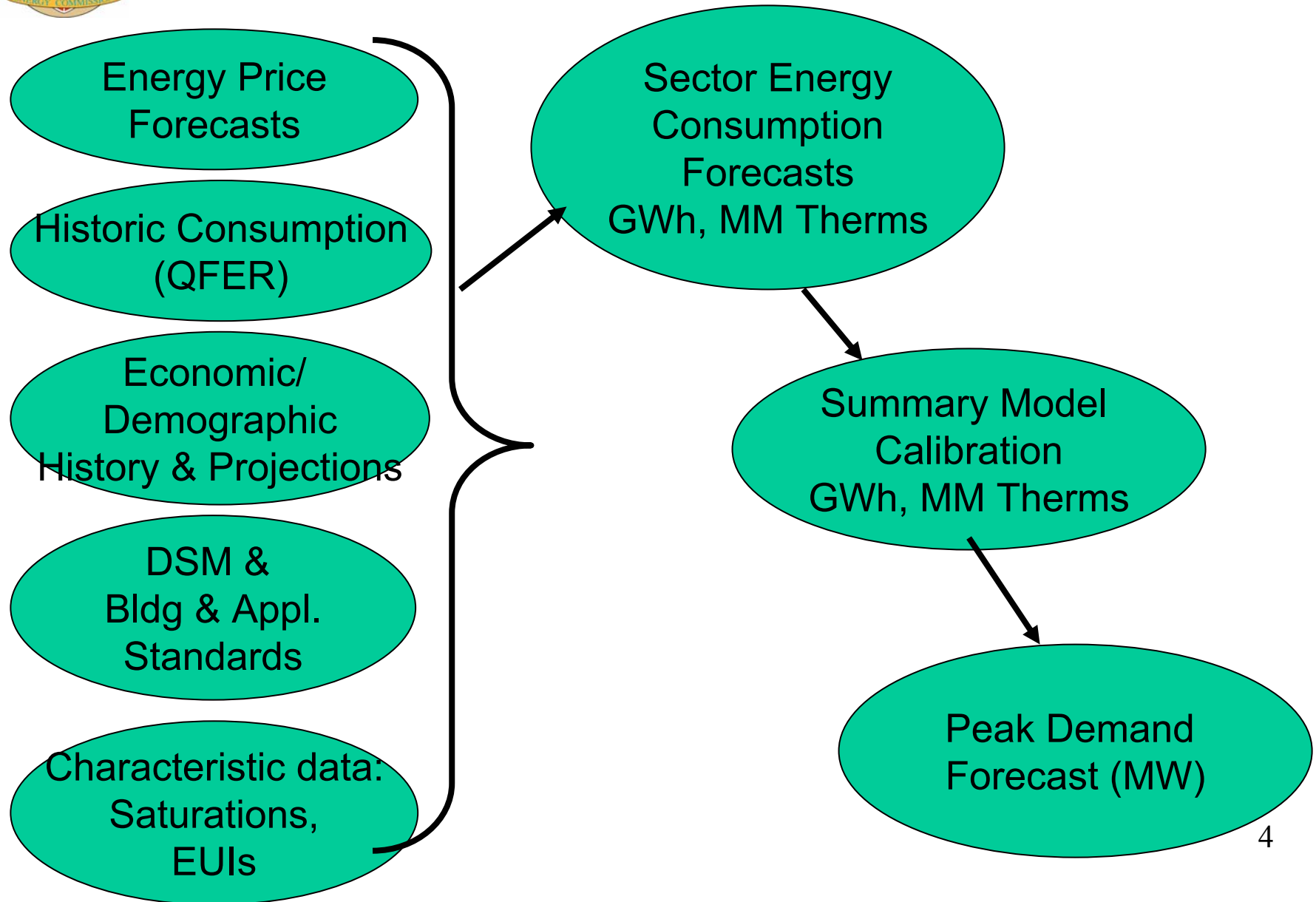


# CEC Forecasting Cycle





# Demand Forecast Overview





# Forecasts by Sector by Utility

Each sector model forecasts energy demand for each utility:

- **Commercial** : 12 building types, 10 equipment and space conditioning categories
- **Residential**: 3 housing types, 10 equipment and space conditioning categories
- **Industrial**: 40 2 or 3 digit SIC groups, 6 end use categories



# Electricity Planning Areas

**Pacific Gas and Electric:** PG&E, Alameda, Biggs, Calaveras, Gridley, Healdsburg, Lassen MUD, Lodi, Lompoc, Merced, Modesto, Palo Alto, Plumas-Sierra, Redding, Roseville, San Francisco, Shasta, Silicon Valley, Tuolumne, Turlock Irrigation District, Ukiah, USBR-CVP, Plumas - Sierra

**Sacramento Municipal Utility District**

**Southern California Edison:** SCE, Anaheim, Anza, Azusa, Banning, Colton, MWD, Riverside, SCW, USBR-Parker Davis, Valley Electric, Vernon

**Los Angeles Department of Water and Power**

**San Diego Gas and Electric:** SDG&E, Escondido

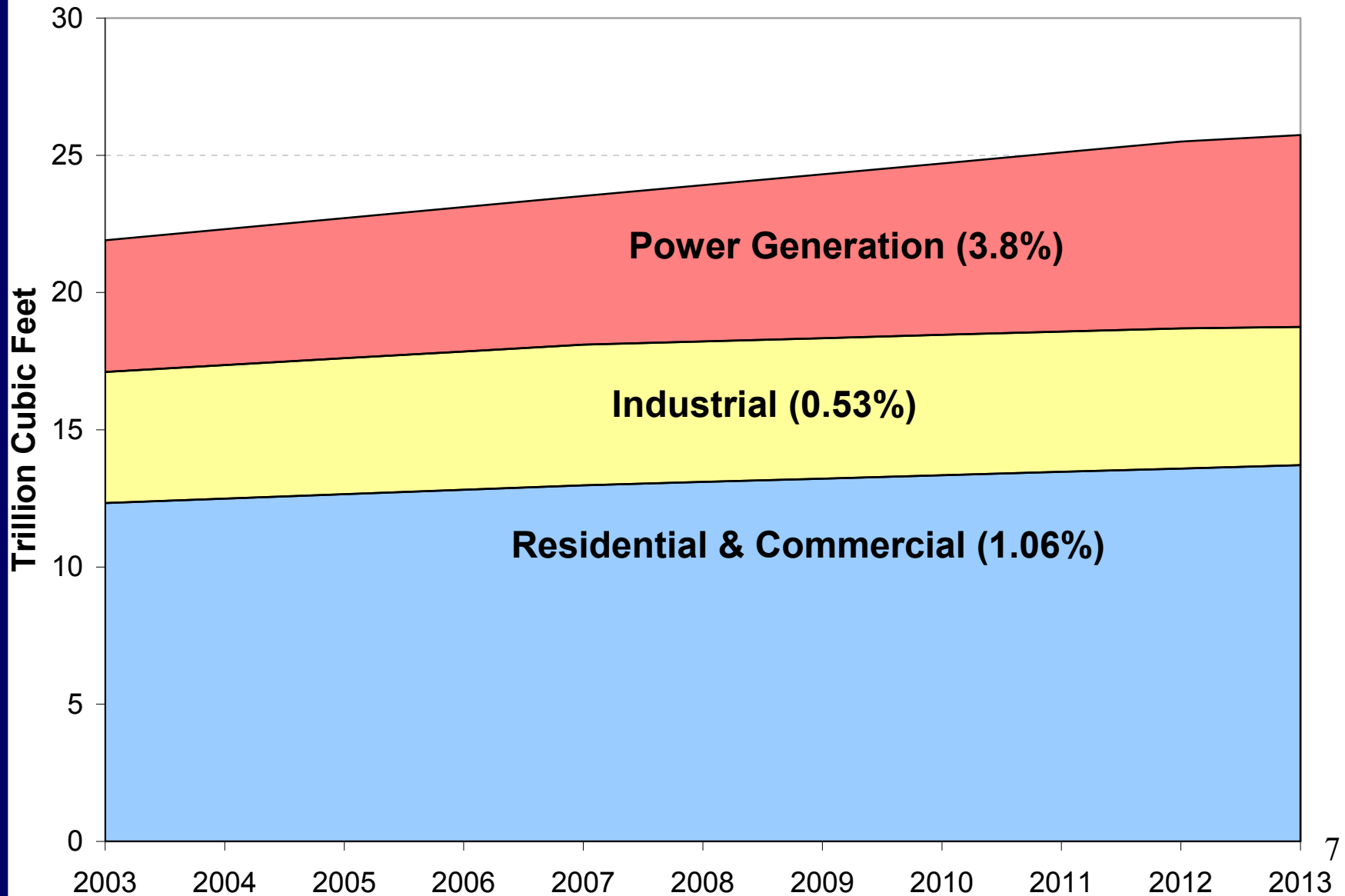
**Cities of Burbank, Glendale, and Pasadena (BGP)**

**Other Planning Area:** PacifiCorp, Truckee-Donner PUD, Sierra Pacific, Imperial Irrigation District (IID), Surprise Valley

**Department of Water Resources (DWR)**

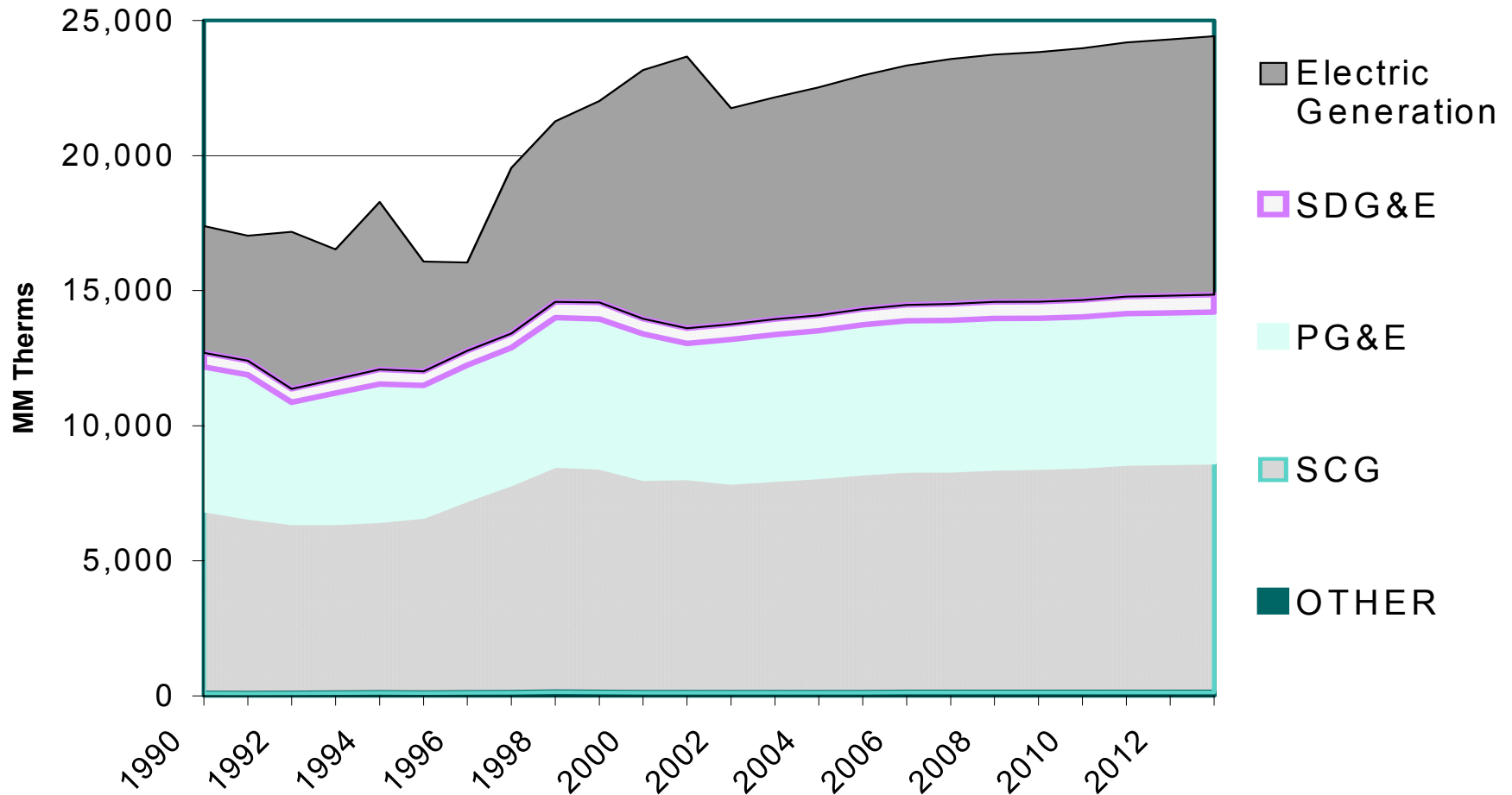


# U.S. Lower48 Natural Gas Demand





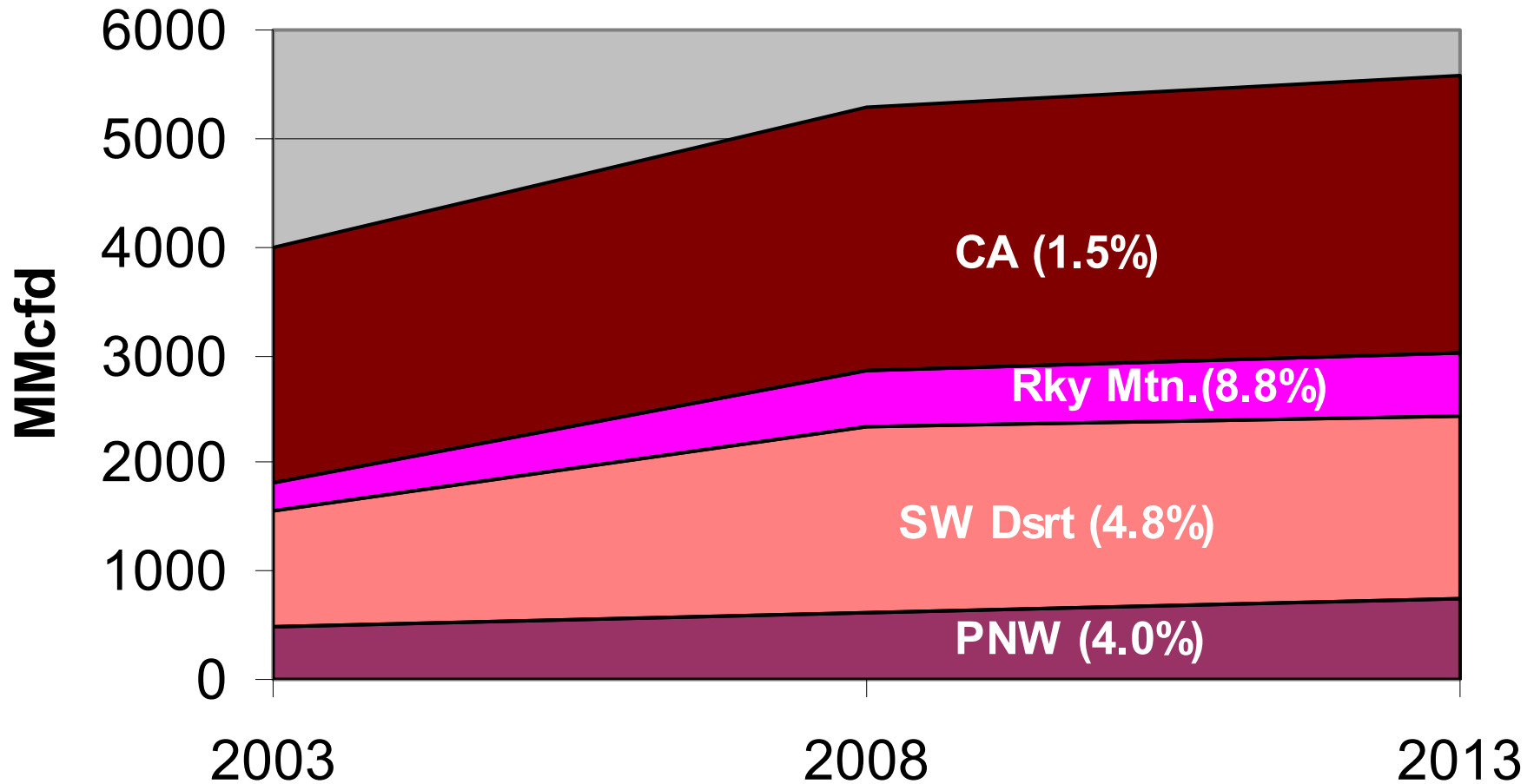
# California Natural Gas Demand







# Gas Demand for PowerGen in WECC





# Total Gas Demand in WECC



## Annual Growth Rates

California : 1.0%

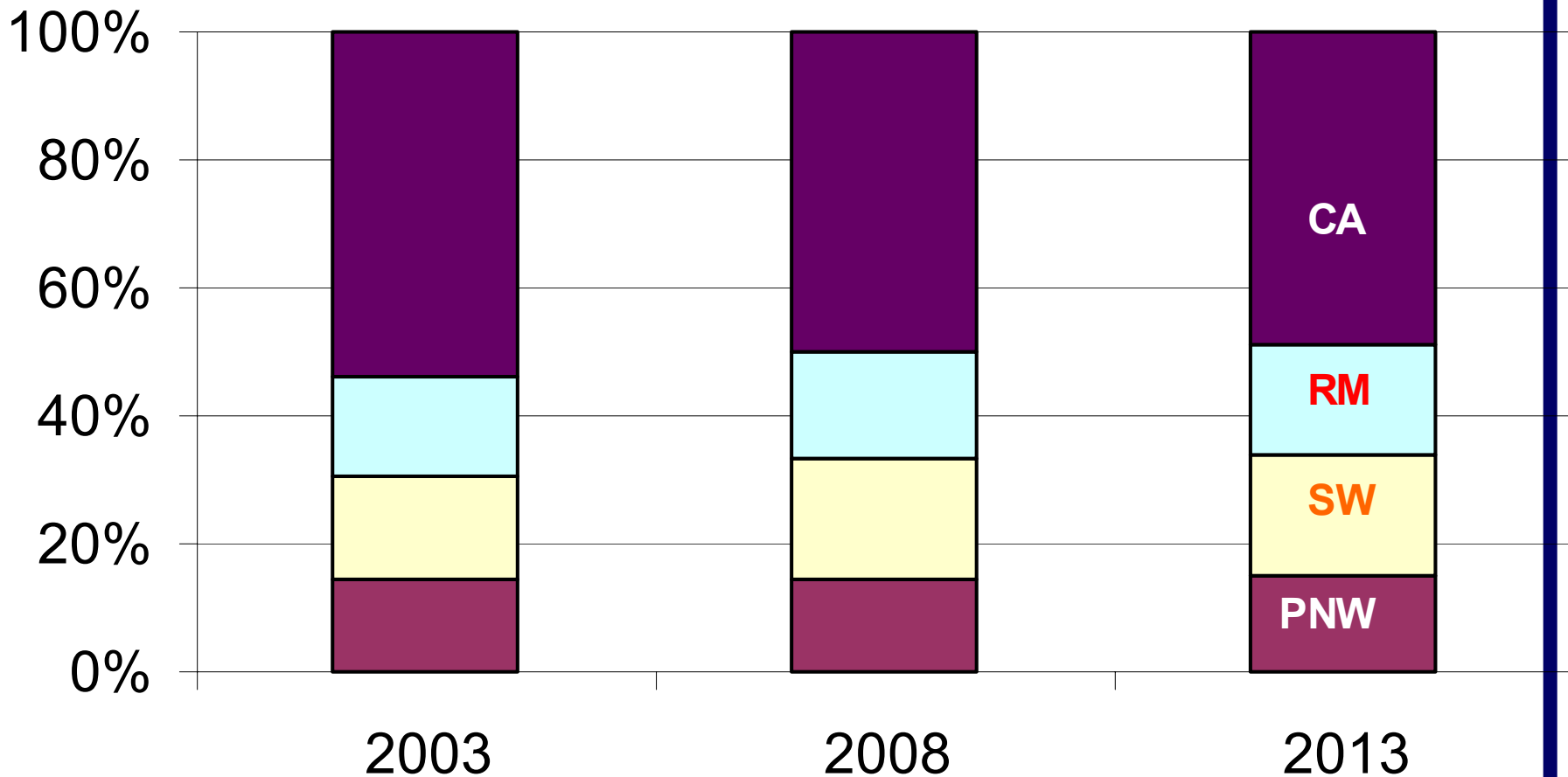
Southwest Desert: 3.7%

Rocky Mountain : 3.2%

Pacific Northwest: 2.3%



# Total Gas Market Shares in WECC



|                   | 2003  | 2008  | 2013  |
|-------------------|-------|-------|-------|
| Pacific Northwest | 14.7% | 14.3% | 15.1% |
| Southwest Desert  | 15.9% | 19.3% | 18.7% |
| Rocky Mountains   | 15.5% | 16.6% | 17.3% |
| California        | 54.0% | 49.8% | 48.8% |



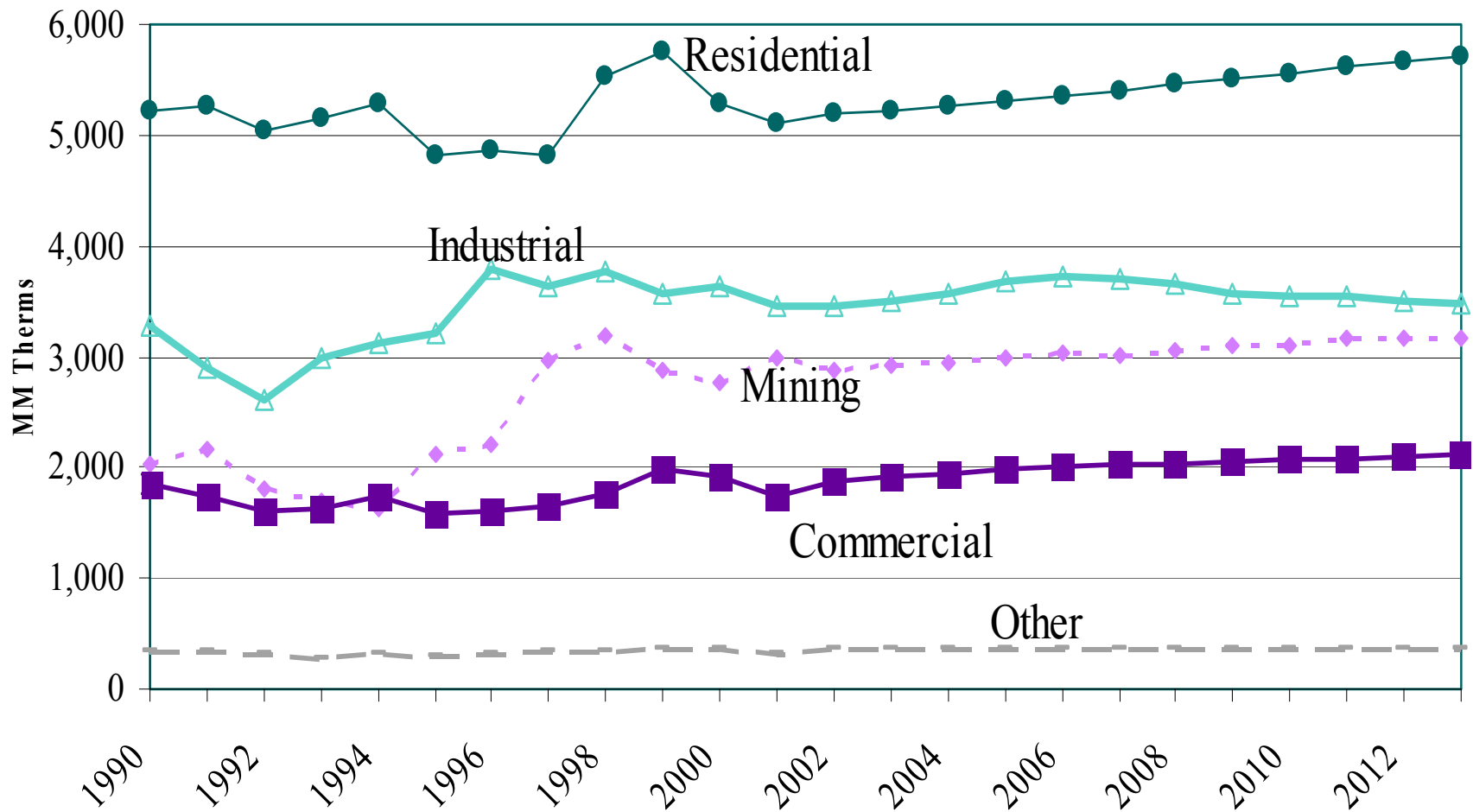
# New PowerGen in WECC

**Projects brought to completion by 2006 include:  
(Capacity is sufficient until 2009-2013 period)**

- **Mountainview (1,056 MW), Metcalf (540 MW) Otay Mesa (540 MW)**
  - **Cosumnes (SMUD, 550 MW), Magnolia (SoCal munis, 300 MW),**
  - **Pico (Santa Clara, 147 MW), (a couple of) Projects under 100 MW,**
  - **LADWP repowers (Valley and Haynes) &**
  - **Peaking facilities in SF and Fresno.**
- 
- **The Baseline RPS is assumed (20% by 2017)**
  - **Retirements: no additional specific plants are assumed. (Impact on gas demand is minimal as "retained" facilities operate at low capacity factors; new peaking generation would consume gas at roughly the same rate.**

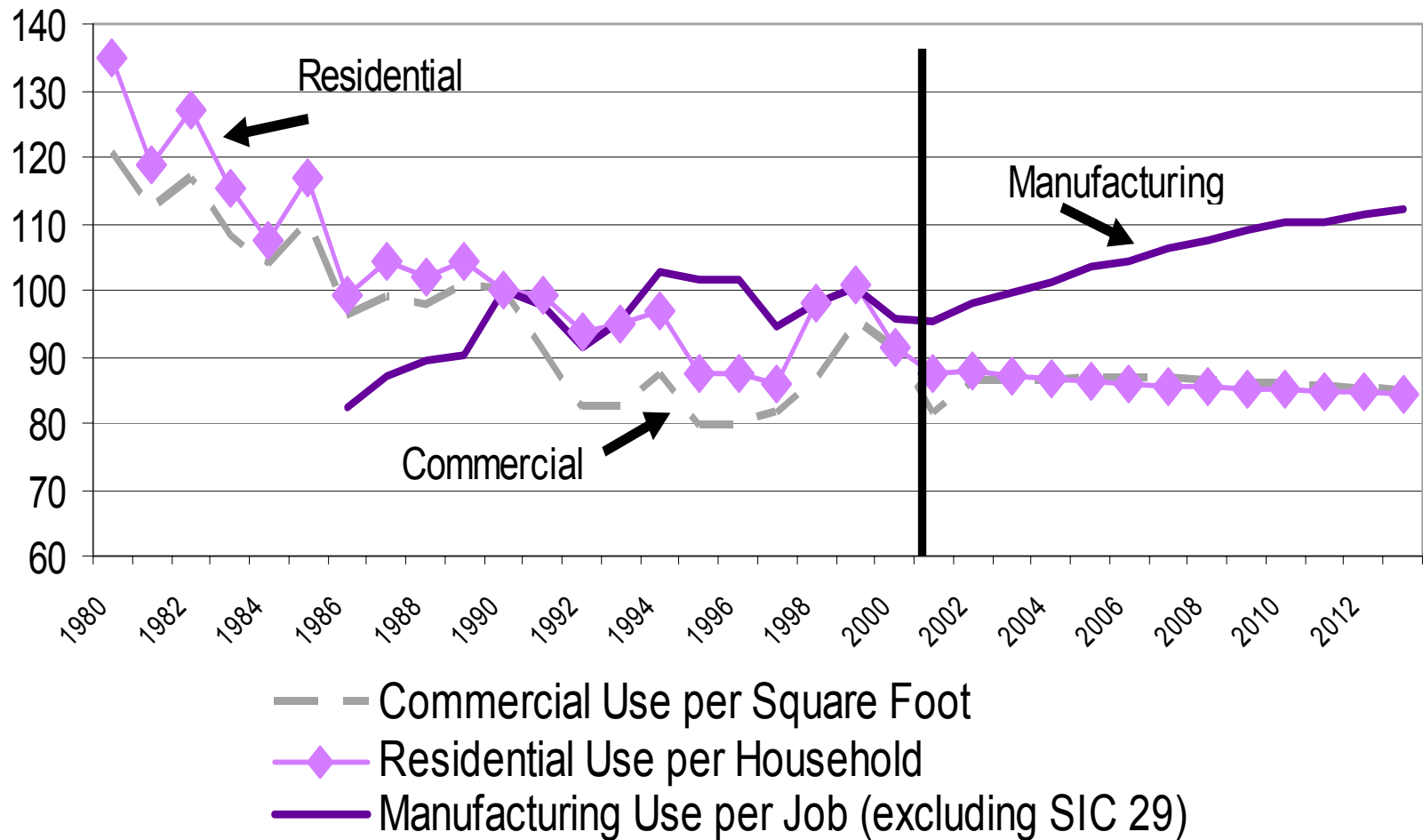


# California End Users Gas Demand by Sector



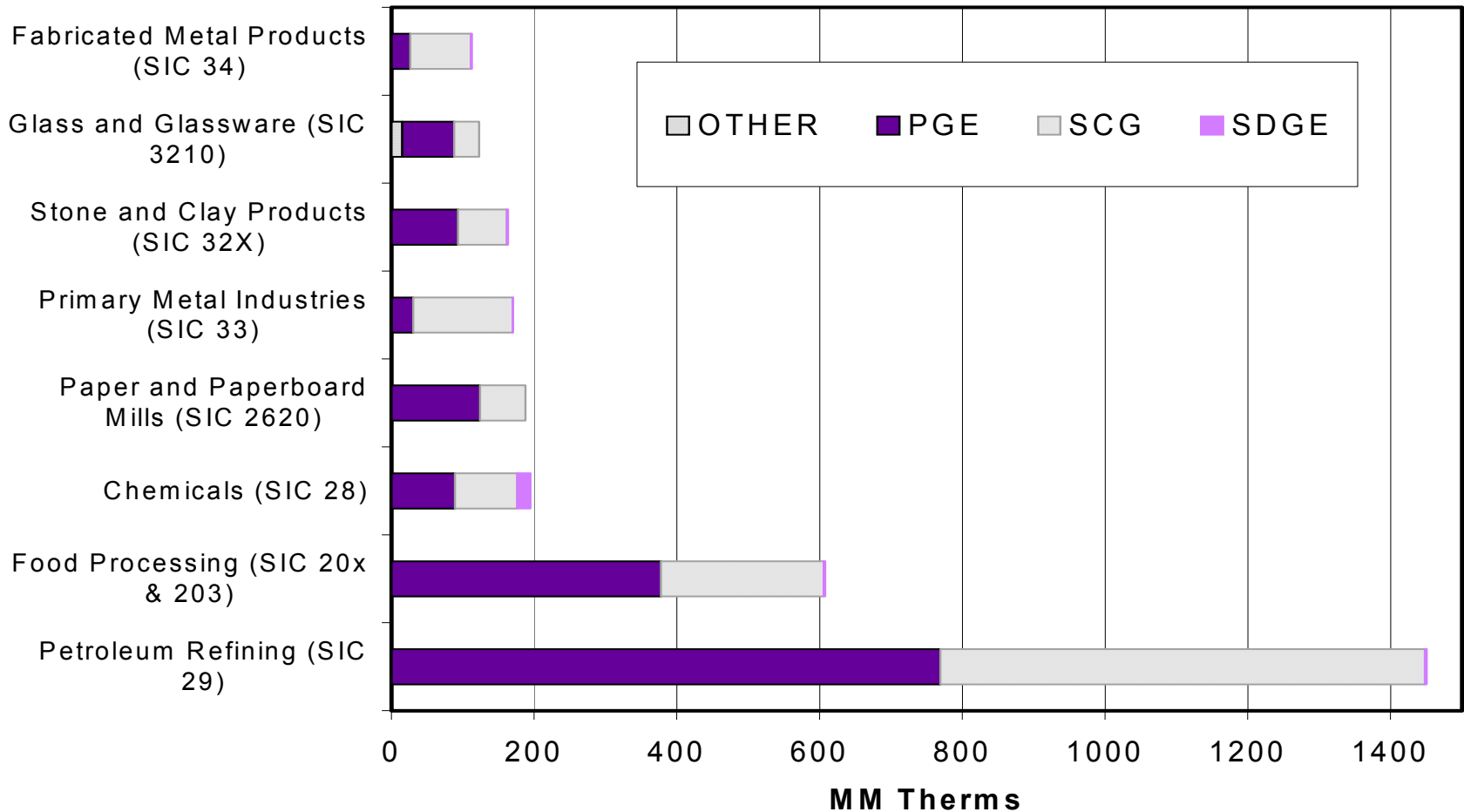


# Natural Gas Use Trends by Sector





## Gas Market share in Major Industrial Sector (2000)





## **In Summary....**

- **Energy Commission will be revising the demand forecast for the next IEPR.**
- **Uncertainty in gas demand for power generation is a key factor in estimating future natural gas demand. Scenario approach provides a way to understand impacts of variations in demand.**
- **Power plants' use of natural gas in California is complicated by**
  - **Uncertainty in temperature and rainfall projections**
  - **How many power plants will be built in the WECC and where**
  - **Penetration of renewable and distributed generation**
- **Dependence on natural gas is not an issue if pipeline congestions, conservation, storage and efficiency improvements are handled in appropriate ways.**